In th Claims

1. (currently am nded) A multiple-input multiple-output (MIMO) wireless communications system comprising:

(i) an antenna array comprising a plurality of transmit antenna elements and forming a plurality of antenna beams; and

(ii) a plurality of receive antenna elements;

wherein the ~~transmit~~ plurality of antenna beams ~~elements are arranged to~~ provide polarisation diversity and wherein ~~the positions of~~ the transmit antenna *elements are arranged such that spatial diversity is avoided.*

2. (original) A MIMO wireless communications system as claimed in claim 1 wherein each of said transmit antenna elements is polarised at one of two first substantially orthogonal polarisations.

3. (original) A MIMO wireless communications system as claimed in claim 2 wherein each of said receive antenna elements is polarised at one of two second substantially orthogonal polarisations.

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4. (original) A MIMO wireless communications system as claimed in claim 3 wherein said two first substantially orthogonal polarisations are different from said two second substantially orthogonal polarisations.

5. (original) A MIMO wireless communications system as claimed in claim 1 wherein said plurality of transmit antenna elements comprises one or more dual-polar-elements each such dual-polar-element being two co-located antenna elements operable from a single antenna aperture.

6. (Cancelled)

7. (original) A MIMO wireless communications system as claimed in claim 1 which is arranged to operate at a particular wavelength and wherein the inter-element spacing of the transmit antenna elements is less than one of the particular wavelength.

8. (original) A MIMO wireless communications system as claimed in claim 1 which is arranged to provid non-MIMO communications in addition to MIMO communications.

9. ~~(Cancelled)~~

10. (original) A MIMO wireless communications system as claimed in claim 9 wherein said plurality of antenna beams are provided using one or more beamformers integral with the transmit antenna elements.

11. (original) A MIMO wireless communications system as claimed in claim 9 wherein said plurality of antenna beams comprises pairs of antenna beams, each pair comprising a first antenna beam of a first polarisation and a second antenna beam, substantially identical to the first but provided at a second polarisation different from the first polarisation.

12. (original) A MIMO wireless communications system as claimed in claim 11 wherein each of said pairs of antenna beams is arranged to provide a two-branch MIMO input.

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13. (original) A MIMO wireless communications system as claimed in claim 1 which is selected from a 2:2 and a 2:4 MIMO system.

14. (original) A MIMO wireless communications system as claimed in claim 1 which is selected from a fixed wireless access system, a personal area network, a wireless local area network, and a mobile communications network.

15. (original) A MIMO wireless communications system as claimed in claim 1 wherein each of said transmit antenna elements comprises a column of antenna elements.

16. (currently amended) A multiple-input multiple-output wireless communications method comprising the steps of:-

(i) forming a plurality of antenna beams from a transmit antenna array comprising a plurality of antenna elements arranged such that polarisation diversity is provided and spatial diversity is avoided;

(ii) transmitting a space-time coded signal from said a transmit antenna array ~~arrangement comprising a plurality of transmit antenna elements arranged such that polarisation diversity is provided and spatial diversity is avoided~~; and

(iii) receiving the space-time coded signal at a receive antenna arrangement comprising a plurality of receive antenna elements.

17. (currently amended) A method as claimed in claim 16 which further comprises:

(i) positioning the transmit antenna array ~~arrangement~~ and the receive antenna arrangement such that a line of sight path is present between those two arrangements; and

(ii) using said transmit antenna array ~~arrangement~~ to transmit the space-time coded signal to the receive antenna arrangement at least partly along said line of sight path.

18. (currently amended) A method as claimed in claim 16 which further comprises transmitting a non-space-time coded signal from the transmit antenna array ~~arrangement~~ simultaneously with the space-time coded signal.

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19. (currently amended) An antenna arrangement for use in a multiple-input multiple-output (MIMO) wireless communications system, said antenna arrangement comprising an antenna array comprising a plurality of transmit antenna ~~elements~~ and forming a plurality of antenna beams, wherein the plurality of beams ~~arranged to~~ provide polarisation diversity and wherein the ~~positions of said~~ transmit antenna ~~elements~~ are such that spatial diversity is avoided.

20. (currently amended) An antenna arrangement as claimed in claim 19 which is arranged to operate at a particular wavelength and wherein the ~~inter-element spacing of the~~ transmit antenna elements have an inter-element spacing which is less than one of the particular wavelength.

21. (original) An antenna arrangement as claimed in claim 19 which is also suitable for use in a non-MIMO communications system simultaneously with use in the MIMO communications system.

22. (original) A method of op rating an antenna arrangement as claimed in claim 19 which comprises transmitting space-time coded signals from said antenna arrangement.

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23. (original) A method of operating an antenna arrangement as claimed in claim 19 which further comprises a plurality of receive antenna elements and wherein said method comprises receiving space-time coded signals at said antenna arrangement, said signals being polarisation diverse and having a substantially insignificant amount of spatial diversity.